

Docket No.: 29827/41149
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Dieter Hermeling et al.

Application No.: 10/532,279

Confirmation No.: 8528

Filed: April 21, 2005

Art Unit: 1794

For: Ultra-Thin Materials Made
from Fibre and Superabsorbent

Examiner: Jennifer A. Steele

REPLY BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Madam:

This reply brief is submitted to respond to points of argument and to correct erroneous statements made in the Examiner's Answer dated February 18, 2009 to appellants' Appeal Brief.

(1) At page 3 of the Examiner's Answer, the examiner states:

"Whitmore teaches preparing the web sample by compressing the fabrics in a Carver Laboratory Press Model #2697 at a top platen heated to 50°C and 7000 psi (5.5 bar) in order to prepare the fabric for measuring the FSEV (pg. 31, lines 33-39)."

Contrary to this statement, the web of Whitmore is not *prepared* using the above pressure and temperature. Whitmore says no more than "certain web materials are subjected to compression at one or more times during construction of a disposable hygienic diaper" (page 26, lines 31-35). The above pressing conditions are used in a standard *test* of the web (after its preparation), and the pressing conditions simulate actual conditions when a diaper containing the web is worn by an infant. See Appeal Brief, pages 19 and 20.

(2) At page 4, the examiner refers to Whitmore disclosing that the compressed web materials have a less pronounced relaxation phenomenon. Then, the examiner states that she cannot determine whether a web of Whitmore reference inherently possess properties that anticipate or render obvious the claimed invention. This inherency argument is repeated throughout the Examiner's Answer, and will be addressed here only. The burden purportedly shifted to the appellants' to overcome this contention of inherency has been thoroughly discussed in the Appeal Brief. The presently claimed webs were compared to webs made in accordance with Whitmore *and* compared to webs even closer to the claimed webs than Whitmore and achieved improvements in dimensional stability far above the stability provided by the Whitmore webs. Although the webs of Whitmore exhibit a less pronounced tendency to relax, a person skilled in the art could not have predicted the improvements achieved by the claimed invention by the application of pressure *and* at temperatures of not less than 60°C (not less than 70°C in claim 23 and not less than 80°C in claim 3). See Appeal Brief, pages 23-25 and 33. It has been *explicitly* shown that the Whitmore webs do not inherently possess the claimed properties.

(3) At pages 4 and 5, the examiner summarizes the Aberson patent, but neglects an important teaching of the reference that leads persons skilled in the art *away* from the presently claimed web. First, Aberson discloses an entirely different type of web wherein the superabsorbent is not bonded to the fiber by an *in situ* polymerization but is merely entangled with the fiber by a pressing operation at elevated temperatures. Pressing and elevated temperatures are needed in the Aberson reference in order to achieve entanglement. Whitmore does not use an increased temperature in preparing the web (except to initiate polymerization) because an increased temperature is *not* needed. Whitmore bonds the superabsorbent by *in situ* polymerization, *not* by entanglement, as in Aberson. Importantly, Aberson clearly teaches using a temperature differential wherein the *coolest region* of the pressed material is the *densest*, i.e., thinnest. If the coolest region is the most dense, and an objective to provide a thin (i.e., dense) web, why would a person skilled in the art, after reading Aberson, consider raising the pressing temperature of Whitmore (i.e., 50°C and used only in a *test*, not a manufacturing step) with any reasonable expectation of providing an *improved* and *much more dense* web. See claim 9 (density of not less than 0.5 g/ccm to 1.2

g/ccm), wherein Whitmore discloses a density only 0.005 to about 0.12 gm/cm, which is 4 to 240 times less dense than that claimed.

(4) At pages 7 and 8 of the Examiner's Answer, it is stated that arguments will be directed at the claimed pressure of 3.0 bar. The examiner therefore has neglected claims 4 and 5, and provided no responses as to why these claimed pressures would have been obvious. Similarly, throughout the Examiner's Answer, a temperature of not less than 60°C is addressed, thereby effectively ignoring the temperature recited in claims 2 and 3.

(5) At page 9 of the Examiner's Answer, the examiner states:

"Therefore it would have been obvious to combine the teachings of Aberson that state that an increase in temperature and pressure produces a superior nonwoven batt with the materials and structure of WO'625 and the results of the combination would have been predictable."

As stated above, Aberson teaches that the *cooler* heated region is the most dense. Contrary to this teaching, the present webs are heated at a temperature 10°C (20%) higher than Whitmore and provide a web material that is 4 to 240 times more dense and exhibit improved dimensional stability. Such results could not have been predicted from the combined teachings of Whitmore and Aberson.

(6) At pages 9-11, the examiner addresses appellants arguments related to the Aberson reference. In the Examiner's Answer, the examiner is focusing on the superabsorbent polymer, stating, for example, that appellants have "merely claimed a superabsorbent polymer." This is incorrect. Appellants claim a web material comprising fibers and a superabsorbent made in a specific way, i.e., *in situ* polymerization, and subjected to claimed pressing and temperature conditions that greatly improve the structural stability of the webs over the closest known prior art, i.e., Whitmore. Appellants do not argue that the *superabsorbent polymer* of Whitmore and Aberson differ. Appellants do argue that the *web materials* of Whitmore and Aberson differ significantly. The examiner also is incorrect in stating that the water in the superabsorbent polymer of Whitmore would react to form a bonded web as in Aberson. The superabsorbent polymer of Whitmore already is bonded by the *in situ* polymerization of monomers which attach the superabsorbent polymer particles to

the fibers. In addition, if any "inherent water" in a web of Whitmore is subjected to the treatment of Aberson, Aberson teaches that an *increase* in temperature would *decrease* density due to moisture migration. The present invention, as shown by objective evidence, achieves the *opposite*.

(7) At page 12 of the Examiner's Answer, it is admitted that the Whitmore reference fails to meet the claimed feature of increase in thickness 60 days after compression of less than 100%. Appellants clearly state in the specification that "all samples which were compressed at a temperature of more than 60°C and a pressure of 5 bar" showed insignificant expansion after 60 days after 60 days at room temperature (specification, page 9, lines 6-11). This contrasts greatly to the greater than 200% to 300% expansion exhibited by comparative materials produced according to the Whitmore test method. See Table in Examiner's Answer at page 12. How can Whitmore inherently disclose such claimed dimensional stability when appellants show with objective evidence that the Whitmore webs expand much more than 100% after 60 days storage?

(8) The examiner contends that the specification provides no evidence that would lead a person skilled in the art to select conditions of at least 3 bar and no less than 60°C over the 50°C and 5.5 bar disclosed in Whitmore. The examiner has this argument backwards. The question is what in Whitmore would lead a person skilled in the art to use the claimed pressing conditions over the pressing conditions disclosed in Whitmore?

(9) With respect to evidence showing the dimensional stability in tables at pages 13 and 14 of the Examiner's Answer, the examiner fails to consider all the examples and comparative examples provided in the specification. Also, the examiner conveniently fails to note that webs were prepared at 50°C and high pressure in the comparative examples. For example, the examiner refers to Examples 1-5, but neglects Comparative Examples 2, 3, 5, and 6 compressed at 50°C, as in Whitmore, and showing poor dimensional stability. These comparative examples show the criticality of the claimed process parameters, contrary to the statement at page 13 of the Examiner's Answer, i.e., pressing at 50°C, as in the Comparative Examples, did *not* provide the dimensional stability and absorption properties demonstrated by the claimed webs.

(10) The Examiner's Answer at page 14 states:

"Appellant's argue that the WO '625 temperature and pressure are selected to mimic the typical use of a diaper incorporating the absorbent material. The test method parameters of 50°C and 5.5 bar would not mimic the parameters of typical use as a person would have a temperature of approximately 36°C and a much lower pressure applied as body weight."

This statement is pure conjecture by the examiner, who fails to understand that the test of Whitmore is standard and well-recognized in the industry. The examiner has simplified the parameters by neglecting other forces in addition to body weight and temperature, such as swelling of the web, friction caused by movement of the infant, and other parameters that account for testing at 50°C and 5.5 bar. Why would a test be designed and conducted under conditions that do not relate to practical use? The test parameters of Whitmore are standardized such that webs can be compared to one another, and the parameters "simulate" actual use conditions.

(11) At page 15 of the Examiner's Answer, it is stated

"While WO '625 does not teach increasing the temperature above 50°C, one of ordinary skill in the art would understand that it is a basic technical principle that applying heat and pressure would serve to compress and bond a web. One of ordinary skill in the art would also know that the higher the temperature, the more the fibers would melt and bond and remain compressed. Aberson '165 teaches that increased temperature has more impact on densifying the web than increasing the pressure."

First, the fibers do not melt and bond under the temperature conditions of Whitmore or Aberson. In addition, the examiner again has failed to consider the full teachings of Aberson, i.e., that regions of the web treated at a higher temperature are *less* dense. This is in direct contrast to the presently claimed invention, wherein pressing at temperatures greater than the 50°C of Whitman *increase* density by 4 to 240 times, as recited in claim 9. It must be noted that the Court in *KSR vs. Teleflex* held that when the prior art teaches away from combining

certain known elements, discovery of successful means of combining them is more likely to be nonobvious.

In summary, it is submitted that the examiner's final rejection of claims 1-11, 13-18, and 21-24 should be reversed.

Dated: April 20, 2009

Respectfully submitted,

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